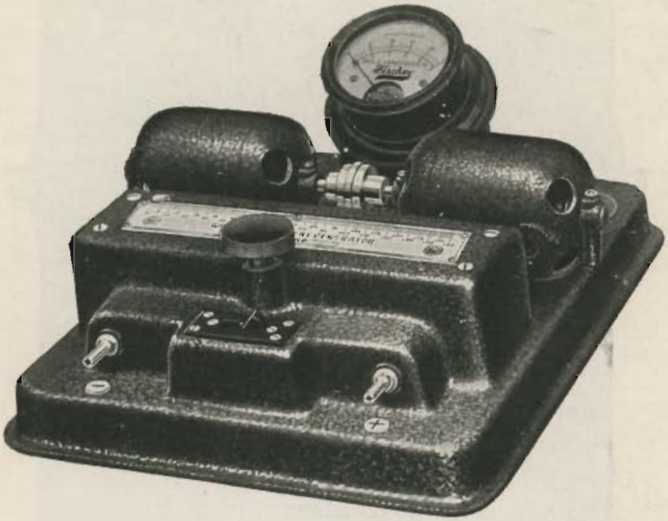
FISCHER
GALVANIC CURRENT GENERATOR



Model No. 1200

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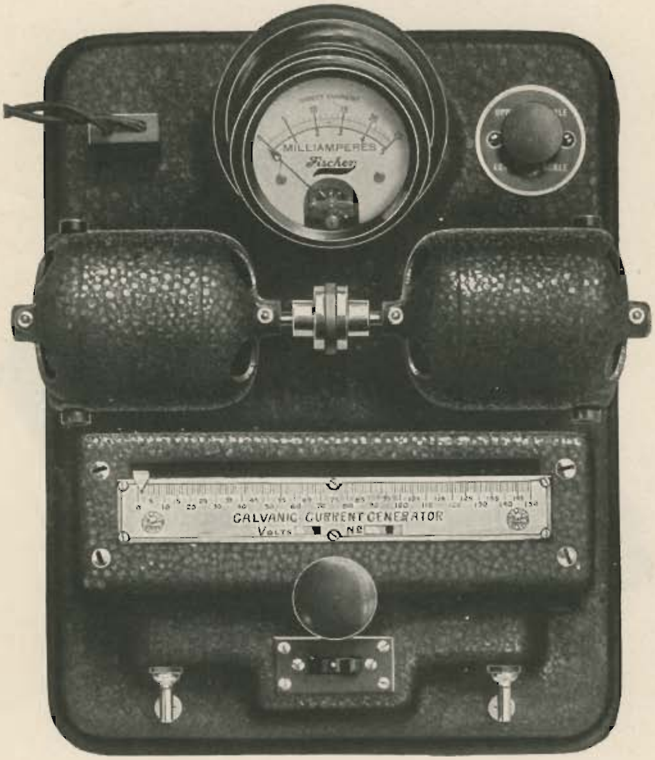
PITTSBURGH, PA.

Manufactured by
H. G. FISCHER & CO., INC.
Physiotherapeutic and X-Ray Apparatus
2333-2343 WABANSIA AVENUE, CHICAGO

Form 524



Fischer Galvanic Plate

Model No. 1200

The Constant Current

The extreme importance of the Galvanic Current in the practice of modern medicine is recognized by the majority of physicians of today, in gynecology, urology, etc., for depilatory work, ionization, rectal lesions, electrolysis, strictures, etc., etc. Following is an article by Frederick H. Morse, M. D., of Boston, which it would be well for the novice as well as the experienced physiotherapeutist to read:

There is nothing new that can be said of the constant current which is the fundamental electric force. Whatever therapeutic effects may have been noted by various operators with the direct current, it can in no way change certain physiological and chemical established actions and reactions that alone apply to the direct current.

Whatever claims are made of physiological action and therapeutic results from other forms of electrical devices, no matter how spectacular or otherwise, there always has been and will be a great variety of opinions about their action and curative ability.

The constant current, however, has a different action that cannot be changed by theoretical conclusions or personal opinion. The desirable action on the human body for the relief or cure of ailments must, of course, depend upon the physician's knowledge of the action of whatever modality he may use, combined with his diagnostic ability.

The effects which concern the physician most are (1) physiological and (2) chemical. It is possible that there are physiological effects due to the nervous stimulus, which can be distinguished ideally, at least, from those due to direct chemical or physical action.

There are four ways in which electrolysis can affect, in the living body, such tissue as muscle by its chemicophysical action: (1) by the chemical effects of the products liberated at the electrodes or in the substances of the tissues; (2) by the removal of electrolytes, chiefly inorganic substances which are necessary for the vitality of the tissues, leading to increased absorption of the elements, and perhaps, in consequence, to increased activity of the general nutrition in the tissue, or if the action be more intense, to diminish vitality, degeneration, and death; (3) by cataphoresis, leading to increase of transferred substances around the negative, and diminution around the positive, and the consequent increase of eliminating or absorbing activity, by which a tissue returns to healthy equilibrium, or to any of the results which follow the disturbance of equilibrium beyond the limits of health; (4) by raising the local temperature in both cases, but the physiological change may be very different.

Positive.

Physiological-sedative.

Physio-chemical: Accumulation of the negatively-charged ions of oxygen and chlorine.

Formation of an acid caustic, i. e., sulphuric, hydrochloric, nitric, and phosphoric acids.

Cataphoric: Loss of hydrogen and basic ions; loss of fluid, coagulation.

Starvation of tissues.

Production of a dry, hard, and non-retractile eschar.

Diffusion of ions of oxidizable metal electrodes or ionized solutions.

Antiseptic: First effect of current ischemia; second, hyperemia; but much less marked than at negative pole.

Negative.

(a) Physiological-stimulating.

(b) Physio-chemical: Accumulation of the positively-charged ions of hydrogen, sodium, potassium, calcium and ammonium.

Formation of an alkaline caustic, i. e., the hydrates of sodium, potassium, calcium and ammonium.

Production of a soft, retractile eschar.

Cataphoric: Accumulation of fluid and basic ions.

With mild currents nutrition promoted; with high currents denutritive effect.

Anaphoric: Ability to diffuse the positive ions of certain chemical.

Antiseptic, moderately. First effect of current, eschemia; second, hyperemia; ultimate effect, equilization of circulatory conditions.

By reason of this physio-chemical polar action, it may be readily seen that the physiological action is both sedative and stimulating, sedative resulting from contact with positive pole because of the cataphoric transfer of the ions of hydrogen and the bases from the region of positive polar contact to and towards that of negative contact, and stimulating at the negative by the increase in that region of fluid and positively-charged ions, which mean at once a hyperemia. By reason of this increased blood supply, stimulating and ultimately nutritional effects follow.

The characteristic action of the positive pole in relation to circulation is one of vasomotor constriction and of the negative one of vasomotor dilation.

The action of the physical effects of the current may be formulated as follows: Electrolysis chemically and cataphoresis mechanically alters the amount and distribution of salts necessary to the proper nutrition and function of the various parts of the living organism. By the latter there is a direct transference of the fluids and salts by way of the cell walls, muscle septa, coats of blood vessels, sheaths of nerves, skin, serous and mucous membranes, in fact, all animal membranes which from the physical point of view are all the very best kind of porous diaphragms. Primarily this action takes place throughout the tissues interposed between the electrodes (not necessarily the nearest way, but along the path of best conduction), but secondarily its influence is felt beyond the interpolar region. Just as it is impossible for a local hemorrhage to exist without its influence being felt beyond the immediate site of the hemorrhage, just so it is impossible to drain a part cataphorically without the influence extending, even to the entire organism.

This physical effect may be carried to the extent of completely cutting off the blood supply, thereby causing immediate and actual destruction (electrolysis of a mole); or by interfering with it to such an extent that there is no channel left by which the inorganic constituents and proteid nutriment can be conveyed to the part with which to feed it, and death from starvation ensues (absorption of an organized inflammatory exudate or an interstitial uterine fibroid); or, in lesser degree, only the normal ionization and osmotic action characteristic of living tissue and necessary to nutrition and normal function. In this latter instance the same physical effect of the current result in a stimulation of normal chemicophysiological processes, i. e., the movement from ion to ion throughout the interpolar circuit, the bodily transfer of complete neutral molecules, and the normal non-electric osmosis. By this action nutritive changes are initiated and, by a sufficiently frequent repetition of the use of the current, are subsequently fully established. The one condition or the other will obtain according to the quantity of the current and the manner of its use, that is, whether a strong or a mild current is used, and whether the application is characterized by current distribution or current density. The use of a strong current of short duration, characterized by a current density, has either an intense irritant or else a destructive action whereas the same current, if characterized by current distribution, will produce an entirely different effect, because by reason of the increased electrode contact (square inch area), the energy expended in each square inch of surface is diminished in proportion to that increase.

A mild current, if long continued, will cause a profound change in the amount of fluids and salts in a part, and in this physical fact is to be found the therapeutic indication in pathological states, whether characterized by a diminished or altered blood supply, under nutritive activity, pelvic exudates, a benign degenerative process, or by an excess of fluids, as in a sub-acute rheumatism, for example.

In considering the physical properties and physiological action of the constant current, that therapeutic indication may be definitely determined, the salient physical feature in contradistinction to other currents must never be lost sight of, namely, polar action. In this lies the secret of its value over and above all other manifestations of electrical energy, whether in pathological physiology or recognized pathological anatomy.

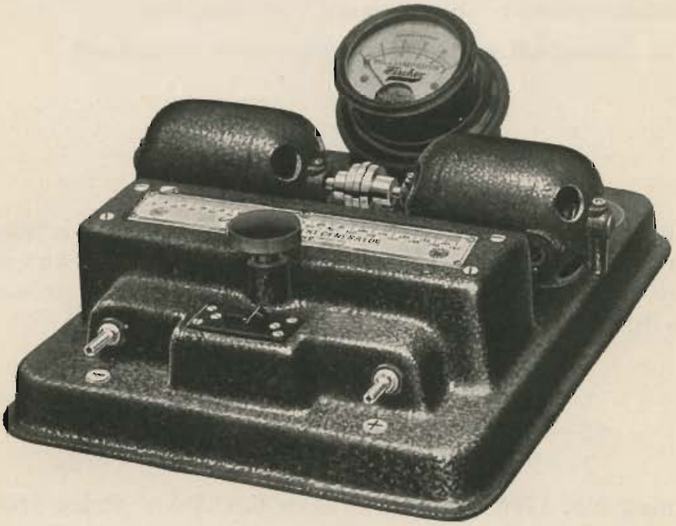
There is to be had in the constant current a current operating at low pressure and small amperage, which, even in the minutest dose, cannot be used without polar action. A milliampere of current will decompose a single drop of water instantaneously with characteristic positive and negative movement of the ions.

Galvanocauterization and electrolysis must not be confounded. In galvanocauterization, use is made of a large quantity of electricity passing through a substance of high resistance, as a platinum loop. The platinum loop, by the transformation of electric energy into heat energy, becomes heated, and it is the heat and not electricity that is utilized in galvanocauterization. The tissues, by the action of galvanocauterization, are destroyed en masse, without any regard to their chemical composition. In electrolyzing animal tissues, heat is not an element to be considered. There is no more heat than can be accounted for by the activity of the chemical processes going on. The chemical activity in a galvanic cell depends on the strength of the current. In the same manner, the amount and activity of electrolysis in any tissue depends on the current-strength sent through the tissues, and the length of time the current is passing. When electrolysis alone is desired, the electrodes must be composed of some material not acted on by the galvanic current. In this case, the positive pole should be made of some non-oxidizable material, as platinum, carbon, or gold. The negative pole is not acted on by the galvanic current; its composition is therefore a matter of indifference.

While there is an interlocking of effect from the action of the various physiological stimuli, it is necessary for the securing of results to recognize their advantages and limitations.

THE FISCHER GALVANIC CURRENT GENERATOR was designed and placed on the market only after repeated requests from operators of Fischer Diathermy and X-ray apparatus—requests for a machine that would generate a perfectly smooth flow of Direct Current at any desired voltage and milliampereage, with an accurate and finely calibrated meter, that would be simple to operate.

We are offering just such an outfit in our Model No. 1200.



Fischer Galvanic Current Generator

Model No. 1200

The units are mounted on a one-piece metal frame, finished with a crystallized black enamel. The smaller attachments are of brass, heavily nickel plated, and stand out handsomely against the black background.

The generating device consists of a small noiseless motor driving a Direct Current generator. The voltage output ranges from zero to 150, and the milliampereage from zero to 25. A "Universal" type motor is employed which is equally effective on either alternating or direct current, at from 105 to 120 volts. The current obtained is direct from the generator—there is no ground connection.

The "dead beat" meter has two scales—one calibrated from 0 to 5 M.A., and the other from 0 to 25 M.A. This permits of accurate readings of currents employed from the finest desired for electrolysis to the heavier as necessitated in cataphoresis and gynecology.

The controller is a sliding device in contact with special high resistance wire; simple and very durable. The voltage is calibrated on a long graduated scale, the reading obtained with a movable pointer—accurate and instantaneous.

The on and off controlling main switch is enclosed.

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Catalog No. 1200—The Fischer Galvanic Current Generator, with black crystallized finish, with connecting cord and plug, ready to operate from either Direct or Alternating current of from 105 to 120 volts, with

1— 316 Spongio Disc and Handle
1—1900 Hard Rubber Needle Holder
12—1901 Sharp Steel Needles, and
2—1904 Rubber Covered Connecting Cords

Catalog No. 1200—Complete; code GALVAN. **Price $100.00**